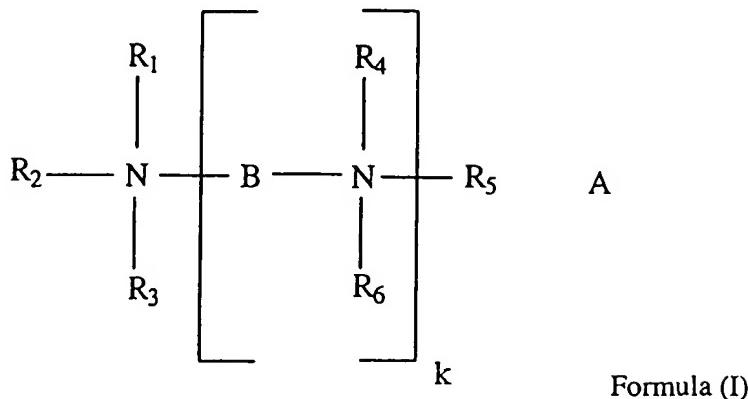


CLAIMS

1. Use of a compound according to Formula (I),



wherein

A denotes an anion selected from the group of chloride, bromide, iodide, hydrogenphosphate (HPO_4^{2-}), dihydrogenphosphate (H_2PO_4^-), sulphate, thiosulphate, hydroxy and/or oxalate.

k denotes an integer 1, 2, 3, 4 or 5;

B denotes an alkandiyl bridge ($\text{CH}_2)_n$; wherein

n denotes an integer 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10;

R₁, R₃ and R₄, which may be identical to one another or different, denote hydrogen, straight-chained or branched C₁-C₆-alkyl, C₁-C₆-alkenyl, C₁-C₆-alkynyl;

R₂ denotes straight-chained or branched C₈-C₂₀-alkyl, C₈-C₂₀-alkenyl, C₈-C₂₀-alkynyl;

R₅ denotes for k=1
straight-chained or branched C₈-C₂₀-alkyl, C₈-C₂₀-alkenyl, C₈-C₂₀-alkynyl;

denotes for k>1
hydrogen, straight-chained or branched C₁-C₆-alkyl, C₁-C₆-alkenyl, C₁-C₆-alkynyl;

R₆ denotes for k=1
hydrogen, straight-chained or branched C₁-C₆-alkyl, C₁-C₆-alkenyl, C₁-C₆-alkynyl;

denotes for k>1
a straight-chained or branched C₈-C₂₀-alkyl, C₈-C₂₀-alkenyl, C₈-C₂₀-alkynyl
and the repeating unit -B-NR₄R₆ may be identical to one another or different;

for transfection.

2. Use of a compound according to claim 1, wherein

A denotes an anion selected from the group of chloride, bromide, iodide, hydrogenphosphate(HPO_4^{2-}), dihydrogenphosphate ($H_2PO_4^-$), sulphate, thiosulphate, hydroxy and/or oxalate.

k denotes an integer 1, 2 or 3;

B denotes an alkandiyl bridge $(-CH_2)_n-$; and

n denotes an integer 1, 2, 3, 4, 5 or 6;

R₁, R₃ and R₄, which may be identical to one another or different, denote hydrogen or straight-chained or branched C₁-C₆-alkyl;

R₂ denotes straight-chained or branched C₈-C₂₀-alkyl, C₈-C₂₀-alkenyl, C₈-C₂₀-alkynyl;

R₅ denotes for k=1
a straight -chained or branched C₈-C₂₀-alkyl, C₈-C₂₀-alkenyl, C₈-C₂₀-alkynyl;

denotes for k>1
hydrogen, straight -chained or branched C₁-C₆-alkyl;

R₆ denotes for k=1
hydrogen, straight-chained or branched C₁-C₆-alkyl, C₁-C₆-alkenyl, C₁-C₆-alkynyl;

denotes for k>1
a straight -chained or branched C₈-C₂₀-alkyl, C₈-C₂₀-alkenyl, C₈-C₂₀-alkynyl
and the repeating unit -B-NR₄R₆ is preferably identical to one another.

3. Use of a compound according to claim 1 or 2, wherein

A denotes an anion selected from the group of bromide, iodide, dihydrogenphosphate ($H_2PO_4^-$) and/or thiosulphate;

k denotes an integer 1 or 2;

B denotes for k=1
an alkandiyl bridge $-(CH_2)_n$ wherein
n represents an integer 2, 3 or 4;

B denotes for k=2
an ethylenebridge $-(CH_2-CH_2)-$;

R₁, R₃ and R₄, which are identical to one another, denote CH₃;

R₂ denotes straight-chained C₁₀-C₂₀-alkyl;

- R₅ denotes for k=1
straight-chained C₁₀-C₂₀-alkyl and is identical to R₂;
- denotes for k=2
CH₃;
- R₆ denotes for k=1
CH₃
- denotes for k=2
straight-chained C₁₀-C₂₀-alkyl and is identical to R₂.
4. Use of a compound according to any one of claims 1 to 3, wherein said compound is part of a liposome further comprising a neutral lipid or lipid like compound.
 5. Use of a compound according to claim 4, wherein said neutral lipid or lipid like compound is dioleoylphosphatidylethanolamine (DOPE) and/or 1,2-dioleyloxyphosphatidylethanolamine and/or Cholesterol and/or Doleyl-phosphatidylcholin (DOPC).
 6. Use of a compound according to any one of claims 1 to 5, wherein said compound comprises a cell targeting component.
 7. Use of a compound according to claim 6, wherein said cell targeting compound is a ligand or ligand-like component for a specific cell surface receptor or nuclear receptor.
 8. Use of a compound according to any one of claims 1 to 7 for in vitro transfection of cell cultures, wherein the DNA/liposome ratio is 0.01µg to 10µg DNA/µg liposome.
 9. Use of a compound according to claim 8, wherein the DNA/liposome ratio is 0.1µg to 1µg DNA/µg liposome.
 10. Use of a compound according to any one of claims 1 to 7 for in vivo transfection, wherein the DNA/liposome ratio is in the range of DNA/liposome (w/w) 2:1 to 1:3 / 1µg to 100mg per kg body weight.
 11. Kit for transfection, characterized in that it comprises a compound as defined in any one of claims 1 to 10.
 12. Kit according to claim 11, characterized in that it further comprises at least one suitable buffer.
 13. Use of a compound according to any one of claims 1 to 12 for the delivery of a nucleic acid, or derivative thereof, into a target cell.
 14. Use of a compound according to claim 13, characterized in that the nucleic acid is single stranded and/or double stranded DNA and/or RNA and/or a DNA/RNA-Hybrid, or derivatives thereof.

15. Use of a compound according to claim 13 or 14, characterized in that the DNA is selected from the group of plasmids, vectors, cDNA, CpG-motifs, and/or oligonucleotides, and the RNA is selected from the group of mRNA, oligonucleotides or ribozymes.
16. Use of a compound according to any one of claims 1 to 15 as a pharmaceutical substance.
17. Use of a compound according to any one of claims 1 to 15 as a prophylactic and/or therapeutic vaccine.